

The male hypopygium of *Anopheles mediopunctatus* Theobald

by

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This *Anopheles* of Tropical South America was first described by THEOBALD under the name *Cyclolepteron mediopunctatus* ¹⁾. HOWARD, DYAR and KNAB who did not recognize THEOBALD's genera placed it back in the genus *Anopheles* ²⁾. DYAR subdividing the genus *Anopheles* in subgenera on scale characters ³⁾ placed it in the subgenus *Arribalzagia* together with his *Apicimacula* group, retaining *Cyclolepteron* as a name for a subgenus with THEOBALD's *Cyclolepteron grabhamii* as type. The male hypopygium shows some very remarkable characters, that give *mediopunctatus* a separate position from either *grabhamii* or *apicimacula* and the allied forms.

I have not seen a full description of the male hypopygium of *Anopheles mediopunctatus* in the literature, that was available to me. It is a very delicate, highly developed structure, very gracefull in its lines.

Description.

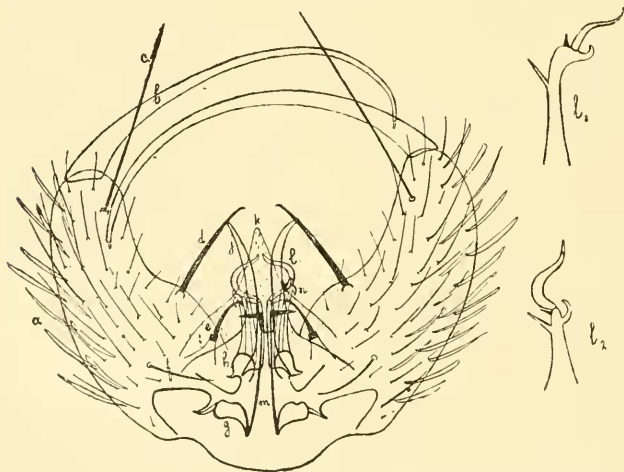
The aedoeagus is long and slender, tubular and bears short leaflets at its terminal opening. At the base at each side there is a triangular piece, corresponding in shape and position to the parameres of *Uranotaenia* and other genera.

¹⁾ THEOBALD, Mon. Culic. III, 60, 1903.

²⁾ HOWARD, DYAR and KNAB, Mosq. N. & C. Am. & W. Ind. IV, 993, 1917.

³⁾ HARR. G. DYAR, Notes on American *Anopheles*, Ins. Ins. Mens. VI, 141, 1918.

The tenth segment forms an anal lobe, covered with minute hairs and without special chitinizations. The side pieces are about twice as long as wide. The clasper is long and slender and has a terminal flattened claw. There are two specialised hairs on the median surface of the side piece, one corresponding in position with CHRISTOPHERS¹⁾ internal spine of his *Protoanopheles* group, the other less specialised more apical still. There is a stout basal spine and a slender accessory basal spine on the side piece (CHRISTOPHERS claspette spines). The claspette like structure (CHRISTOPHERS harpagones) shows an extraordinary development. The dorsal part is represented by a hooked slender chitinous prominence



Male hypopygium of *Anopheles mediopunctatus* THEOBALD.

a. Side piece; *b.* Clasper; *c.* Specialised apical hair; *d.* CRISTOPHERS internal spine; *e.* Basal spine; *f.* Accessory basal spine; *g.* Paramere like structure; *h.* Semidetached basal piece of chitin; *j.* Process arising from the ninth tergite; *k.* Tenth segment; *m.* Mesosome of aedoeagus; *n.* Hairs on the ventral part of the claspette like structure; *l.* Dorsal part of claspette like structure; *l*₁, *l*₂. Different views on the same structure.

bearing a few subapical spines and a terminal curved filament. The spines are difficult to see in a flattened specimen but are very distinct when the preparation is still floating in clove oil. It is a sturdy, rigid structure differing in shape when looked at from different sides. The ventral part of

the claspette like structure is represented by a semidetached piece of chitin bearing at its tip a few basally fused hairs, which are much flattened out apically, competing in elegance with the dorsal part. There are two more chitinous spines, entirely ventrally placed, one on each side. They represent projections of the ventral part (tergite originally) of the ninth segment. They are much longer than the ordinary lobes of the ninth tergite of other genera and bear no hairs; they are placed much nearer to the median line than the triangular processes of the ninth segment present in some other *Anopheles* species (e.g. *Anopheles tessellatus* THEOBALD, fig. 12 in CHRISTOPHERS publication or *Anopheles hylephilus* DYAR and KNAB). They are at least as long as the spines and hairs of the claspette like structure and they all reach further than halfway the length of the side piece.

No other American *Anopheles* species is known to me with anything like this extreme development of specialised spines at the base of the hypopygium. Neither is there any resemblance in one of CHRISTOPHERS figures. The species of DYAR's subgenus *Arribalzagia* which have the same distribution of scales over the body of the adult and very similar larvae differ not only in the structure of the claspette like organ and the absence of the ventral spines but also by the absence of the extra median specialised hair near the tip of the side piece. *Anopheles grabhamii* THEOBALD shows two specialised hairs on the median surface according to CHRISTOPHERS, which may be an indication of closer relationship.

The terms used in this description are those proposed by EDWARDS lately ²⁾.

¹⁾ S. R. CHRISTOPHERS, The male genitalia of *Anopheles*, Ind. Journ. of Med. Res. III, 371, 1915.

²⁾ F. W. EDWARDS, Nomenclature of the parts of the male hypopygium of Diptera Nematocera, with special reference to mosquitoes. Ann. Trop. Med. and Parasit. XIV, 23, 1920.